

Docket No.: 58799-046

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
Osamu KAWAMAE, et al. :
Serial No.: : Group Art Unit:
Filed: August 24, 2001 : Examiner:
For: DATA RECORDING METHOD, DATA REPRODUCING METHOD, DATA
RECORDING APPARATUS AND DATA REPRODUCING APPARATUS

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, DC 20231

Sir:

Prior to examination of the above-referenced application, please amend the
application as follows:

IN THE CLAIMS:

1. (Amended) A data recording method for recording data on a rewritable recording
medium, comprising the steps of:

converting writing data to be written to a position on the recording medium into
data different from data already recorded in the [same] position on the recording medium;

and

recording the converted data on [a] the rewritable recording medium.

7. (Amended) A data recording method according to claim 2 [1], wherein said data-converted data comprises [is] main data, identification data, error detection code, and error correction code.

9. (Amended) A data recording method for recording data on a recording medium which can be rewritten multiple times, comprising the steps of:

ordering the signal processing of data to be recorded on the recording medium in response to a received recording instruction;

adding error correction data to the data in response to the order;

data-converting the data thus added to by superposing thereon information generated on the basis of data conversion information;

modulating the converted data thus data-converted and the data conversion information;

recording the data conversion information to the recording medium; and

recording the converted data to a [the] vicinity of a [the] recording position in which the data conversion information was recorded.

13. (Amended) A data reproducing method for reproducing from a recording medium, in which data conversion information and converted data are recorded, wherein said converted data is data-converted by having superposed thereon information generated on the basis of the data conversion information, [are recorded] said method comprising the steps of:

reading the data conversion information;

generating information on the basis of the data conversion information;

restoring the converted data back to pre-conversion data as [of] before the data-conversion occurred, using the read data conversion information and the generated information; and

reproducing the pre-conversion data.

21. (Amended) A data recording apparatus according to claim 20, wherein said converter superposes on the data to be recorded [writing data] other data having no correlation with the data to be recorded [writing data] and thereby converts the data to be recorded [writing data] into different data every recording [writing] operation.

31. (Amended) A data reproducing apparatus for reproducing from a recording medium in which data conversion information and converted data are recorded, said converted data data-converted by having superposed thereon information generated on the basis of the data conversion information, [are recorded] the apparatus comprising:

a laser pickup for reading the data conversion information and the converted data;

a signal-processing circuit for using the read data conversion information and the information generated on the basis of the data conversion information to restore the converted data to pre-conversion data as [of] before the data-conversion occurred; and

reproducing apparatus for reproducing the pre-conversion data.

39. (Amended) A data recording method for use with a rewritable recording medium, wherein in case writing data of management information to be recorded to a position on the

recording medium includes [the same] first data [as] which is the same as at least parts of second data already written in the [same] position on the recording medium, the writing data is not recorded with respect to the parts where the first and second data are [is] the same.

40. A data recording apparatus for recording data on a rewritable recording medium, wherein management information of writing data to be recorded on the recording medium is temporarily stored in a [separate] memory and not written to the recording medium until [when] the recording medium is to be removed from the apparatus.

41. (Amended) A data recording apparatus comprising:

means for recording data on a rewritable recording medium; and [, comprising]

means for generating first data by superposing known data on management information of writing data to be recorded on the recording medium, wherein [it] the first data is recorded as different management information data on every recording operation.

42. (Amended) A data recording apparatus for use with a rewritable recording medium, wherein on data writing first data already recorded in a writing position on the recording medium and second data to be newly written to the [same] writing position are compared and in case the first data and the second data include different data, the second data is written to the [write] writing position.

43. (Amended) a data reproducing apparatus for reproducing data from a recording

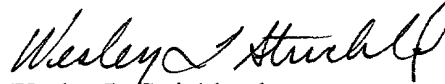
medium on which data converted to a predetermined format has been recorded, comprising
first output means for, in case a known data series is detected from data having undergone
a reverse-conversion of the format, deeming the data series to be invalid data and not
outputting [it] the invalid data as reproduction data, and second output means for
outputting a flag indicating that the data is invalid.

REMARKS

The present amendments are not intended to narrow any of the recited claims features; but, instead, are intended to address informalities that arose from translating the priority applications into English. No new subject matter has been added by any of the amendments.

Respectfully submitted,

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CLEAN COPY OF AMENDED CLAIMS:

1. (Amended) A data recording method for recording data on a rewritable recording medium, comprising the steps of:

converting writing data to be written to a position on the recording medium into data different from data already recorded in the position on the recording medium; and recording the converted data on the rewritable recording medium.

7. (Amended) A data recording method according to claim 2, wherein said data-converted data comprises main data, identification data, error detection code, and error correction code.

9. (Amended) A data recording method for recording data on a recording medium which can be rewritten multiple times, comprising the steps of:

ordering the signal processing of data to be recorded on the recording medium in response to a received recording instruction;

adding error correction data to the data in response to the order;

data-converting the data thus added to by superposing thereon information generated on the basis of data conversion information;

modulating the converted data thus data-converted and the data conversion information;

recording the data conversion information to the recording medium; and

recording the converted data to a vicinity of a recording position in which the data conversion information was recorded.

13. (Amended) A data reproducing method for reproducing from a recording medium, in which data conversion information and converted data are recorded, wherein said converted data is data-converted by having superposed thereon information generated on the basis of the data conversion information, said method comprising the steps of:

reading the data conversion information;

generating information on the basis of the data conversion information;

restoring the converted data back to pre-conversion data as before the data-conversion occurred, using the read data conversion information and the generated information; and

reproducing the pre-conversion data.

21. (Amended) A data recording apparatus according to claim 20, wherein said converter superposes on the data to be recorded other data having no correlation with the data to be recorded and thereby converts the data to be recorded into different data every recording operation.

31. (Amended) A data reproducing apparatus for reproducing from a recording medium in which data conversion information and converted data are recorded, said converted data data-converted by having superposed thereon information generated on the basis of the data conversion information, the apparatus comprising:

a laser pickup for reading the data conversion information and the converted data;

a signal-processing circuit for using the read data conversion information and the

information generated on the basis of the data conversion information to restore the converted data to pre-conversion data as before the data-conversion occurred; and reproducing apparatus for reproducing the pre-conversion data.

39. (Amended) A data recording method for use with a rewritable recording medium, wherein in case writing data of management information to be recorded to a position on the recording medium includes first data which is the same as at least parts of second data already written in the position on the recording medium, the writing data is not recorded with respect to the parts where the first and second data are the same.

40. A data recording apparatus for recording data on a rewritable recording medium, wherein management information of writing data to be recorded on the recording medium is temporarily stored in a memory and not written to the recording medium until the recording medium is to be removed from the apparatus.

41. (Amended) A data recording apparatus comprising:
means for recording data on a rewritable recording medium; and
means for generating first data by superposing known data on management information of writing data to be recorded on the recording medium, wherein the first data is recorded as different management information data on every recording operation.

42. (Amended) A data recording apparatus for use with a rewritable recording medium, wherein on data writing first data already recorded in a writing position on the recording

medium and second data to be newly written to the writing position are compared and in case the first data and the second data include different data, the second data is written to the writing position.

43. (Amended) a data reproducing apparatus for reproducing data from a recording medium on which data converted to a predetermined format has been recorded, comprising first output means for, in case a known data series is detected from data having undergone a reverse-conversion of the format, deeming the data series to be invalid data and not outputting the invalid data as reproduction data, and second output means for outputting a flag indicating that the data is invalid.